Changing the South Florida Ecosystem

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The Kissimmee-Okeechobee-Everglades (KOE) watershed connects a set of unique ecological systems in central and south Florida. Flowing water maintains freshwater marshes, rivers, sloughs, pine flatwoods, prairies, hardwood hammocks, mangrove swamps, estuaries, bays and other systems. These ecological systems provide food and habitat for fish, birds and wildlife. Residents and visitors also use the water and ecological systems. In fact, people have drawn on the watershed's resources for over 10, 0000 years without making significant changes until about 100 years ago.

Significant changes began in 1907, when Governor Napoleon Bonaparte Broward formed the Everglades Drainage District (EDD) in response to damage caused by a flood in 1903. Between 1913 and 1927, the EDD spent $18 million on developing and improving 440 miles of canals that drained 7,150 square miles of the KOE watershed.

A second major project began in 1930 as a response to hurricanes in 1926 and 1928. These storms produced floods that claimed over 2,500 lives and caused $75 million of damage. With support from President Herbert Hoover and funding from Congress, the U.S. Army Corps of Engineers helped construct the 85-mile long Herbert Hoover Dike to control flow from Lake Okeechobee.

In 1947, the flood-control system failed when heavy rains and back-to-back hurricanes dumped nearly 100 inches of rain on the region. Flooding damaged agricultural lands and urban areas, including West Palm Beach, Fort Lauderdale and Miami. In response, Congress authorized the Central and Southern Florida Project (C&SF Project) in 1948. Many people hailed this massive flood-control project as the best engineering effort in the history of the nation. Along with some recent additions, the C&SF Project's 1,000 miles of canals, 720 miles of levees, and several hundred water-control structures remain critical in regulating floods and supplying water for agricultural and urban areas in 16 counties.

Our use of the KOE watershed leads to some major challenges if we also want to retain its natural beauty and function. The population in the watershed far exceeds predictions used to design the C&SF Project, and it is growing rapidly. More people will create demands on the 1.7 billion gallons of fresh water that currently flow to the coast each day. We're challenged to meet these demands without reducing the flow rate that is already 70 percent less than pre-1900 levels. The timing and duration of water flow also pose challenges because flood-control structures divert or delay significant amounts of water from its natural course. In addition, the water that does flow tends to contain higher levels of nutrients and other chemicals. In combination, these factors promote changes to key habitats, reductions in wading bird populations, health advisories across thousands of acres in the Everglades due to mercury contamination of fish, declining numbers of commercial and recreational fish in Biscayne Bay and Florida Bay, saltwater intrusion into our drinking water supplies, and other detrimental impacts on the KOE watershed.

In an effort to address these challenges, Congress approved the Comprehensive Everglades Restoration Plan (CERP) in December 2000. Predicted outcomes from the plan include increasing water storage and supply, improving water quality, re-establishing a more natural sheet-flow, slowing the spread of invasive plants, creating stormwater treatment areas to buffer natural systems from nutrients and chemicals, and restoring the KOE watershed (see http://www.evergladesplan.org).

The restoration road map, as is it sometimes described, lays out a journey that will last over 20 years. Although predictions and plans are based on the best available science, we aren't absolutely certain about the ultimate changes to Biscayne Bay, Florida Bay, the Florida Keys and other coastal ecosystems. Efforts to improve our understanding continue through research funded by the National Oceanic and Atmospheric Administration, the South Florida Water Management District, the National Science Foundation and other state and federal organizations.

What can you do? You can learn more, form an opinion and make it heard by contacting elected officials, governmental agencies and non-governmental organizations; joining a community organization; or attending local meetings, public hearings and workshops on restoration in south Florida. You can also get involved in efforts to clean up or restore local areas by collecting trash or removing exotic plants.

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